a brush that slides over the commutator, electric power being supplied to the rotor from an external power source via the commutator and brush to rotate the rotor;

a detecting means that detects a current or a voltage supplied to the motor from a power source;

a determining means that determines an occurrence of a short of at least one of the plurality of the motor coils by determining that the detected voltage or current obtained by the detecting means exhibits a larger fluctuation range than the respective pre-stored voltage or current, said pre-stored voltage or current representative of that supplied from the external power source during a normal state.

2. (Amended) The motor coil-shorting detecting unit according to claim 1, wherein:

the determining means determines the short based on ripple variations of the current or voltage supplied to the motor from the external power source, the ripple variations being detected by the detecting means.

4. (Amended) The motor coil-shorting detecting unit according to claim 3, further comprising:

an abnormality informing means for informing a user when the short is determined by the determining means.

5. (Amended) The motor coil-shorting detecting unit according to claim 4, further comprising:

a9 amend.

a stop control means for stopping power supply to the motor when the short is determined by the determining means.

6. (Amended) A motor coil-shorting detecting unit, comprising:

a motor including a plurality of coils;

a commutator provided on the rotor that electrically communicates with the coils;

a brush that slides over the commutator, electric power being supplied from an external power source to the coils via the commutator and brush to rotate the rotor;

a current detector that detects a current supplied to the coils from the power source;

a determining device that compares the detected current with a pre-stored current, said pre-stored current representative of a current supplied by said power source and used by said motor when a short does not exist;

an indication device responsive to said determining device that indicates said short exists when the detected current exhibits a larger fluctuation range than the respective pre-stored current.

Please add the following new claims.

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8. (New) A motor-coil short detecting apparatus comprising:

a motor including a rotor having a wire with a plurality of coils wrapped around said rotor;

a commutator provided on the rotor;

a brush that slides over the commutator, electric power being supplied to the rotor from an external power source via the commutator and the brush to rotate the rotor;

a detecting means that detects a current or a voltage supplied to the motor from a power source;

a determining means that compares the detected voltage or current obtained by the detecting means with a respective pre-stored voltage or current to determine whether a short has occurred in one of the plurality of coils, said pre-stored voltage or current representative of that supplied from the external power source during a normal state;

an abnormality informing means for informing a user when the determining means has determined that the short has occurred;

a stop control means for stopping power supply to the motor when the determining means has determined that the short has occurred, wherein

the stop control means is invoked when the determining means determines that the short has occurred based on a variation of the current supplied to the motor when a current fluctuation range experienced in a single rotation of the rotor is different

than a current fluctuation range of a prior single rotation of the rotor.

A10 cont.

9. (New) The motor-coil short detecting apparatus of claim 8, wherein the determining means determines that the short has occurred when a current route changes among the coils.

10. (New) A motor coil-shorting detecting unit, comprising:

a motor including a rotor having a wire with a plurality of coils wrapped around said rotor;

a commutator provided on the rotor;

a brush that slides over the commutator, electric power being supplied to the rotor from an external power source via the commutator and brush to rotate the rotor;

a detecting means that detects a current or a voltage supplied to the motor from a power source;

a determining means that determines an occurrence of a short of at least one of the plurality of the motor coils by determining that the detected voltage or current obtained by the detecting means exhibits a larger fluctuation range than the respective pre-stored voltage or current, said pre-stored voltage or current representative of that supplied from the external power source during a normal state, wherein

the determining means determines the short based on ripple variations of the current or voltage supplied to the motor

from the external power source, the ripple variations being detected by the detecting means,

a10 amend.

the determining means includes a temperature correction circuit for correcting the pre-stored current or voltage according to a circumferential temperature;

an abnormality informing means for informing a user when the short is determined by the determining means; and

a stop control means for stopping power supply to the motor when the short is determined by the determining means.